

Serial No.: 10/620,028
Amendment dated September 14, 2006
Responsive to Office Action of June 14, 2006

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Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

5 **Listing of claims:**

1-11. (Canceled)

12. (New) An exercise machine for exercising one or more muscles of the body of an exerciser, comprising:

10 a contact member movable in one direction through a distance defining a range of motion;

a source of force;

a mechanical connection that transmits a resistive force from the source of force along a resistive force vector in opposition to movement of the contact member through its range of motion; and

15 a support for the mechanical connection that changes the direction of the resistive force vector a plurality of times during movement of the contact member through its range of motion such that the exerciser experiences an oscillating force vector.

20 13. (New) The machine of claim 12, wherein the support for the mechanical connection also changes the magnitude of the resistive force a plurality of times during movement of the contact member through its range of motion such that the exerciser also experiences an oscillating magnitude of the resistive force.

25 14. (New) The machine of claim 12, wherein the support for the mechanical connection is controlled by a device selected from the group consisting of:

a hydraulic pump,

a pneumatic pump, and

a programmable controller.

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15. (New) The machine of claim 12, wherein the support for the mechanical connection is controlled by a programmable controller which randomly changes the direction of the resistive force vector.

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16. (New) The machine of claim 12, wherein the oscillating force vector changes direction during movement of the contact member through its range of motion in accordance with a pattern selected from the group consisting of:

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- a sinusoidal fluctuation,
- a sawtooth fluctuation,
- a series of narrow pulses,
- a square wave, and
- a modified sawtooth fluctuation.

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17. (New) The machine of claim 12, wherein the mechanical connection comprises a cable, and the support comprises a lead pulley having a rotational axis and a groove in which the cable is supported, wherein as the pulley rotates a cable guide portion of the groove oscillates laterally along the pulley axis of rotation.

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18. (New) An exercise machine for exercising one or more muscles of the body of an exerciser, comprising:

a contact member movable in one direction through a distance defining a range of motion;

a source of force;

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a mechanical connection that transmits a resistive force from the source of force along a resistive force vector in opposition to movement of the contact member through its range of motion; and

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an oscillator that engages the mechanical connection and changes the magnitude of the resistive force a plurality of times during movement of the contact member through its range of motion such that the exerciser experiences an oscillating magnitude of the resistive force.

5 19. (New) The machine of claim 18, wherein the oscillator is controlled by a device selected from the group consisting of:

 a hydraulic pump,
 a pneumatic pump, and
 a programmable controller.

10 20. (New) The machine of claim 18, wherein the means for changing the magnitude of the resistive force includes a programmable controller which randomly changes the magnitude of the resistive force.

15 21. (New) The machine of claim 18, wherein the oscillating magnitude of the resistive force changes during movement of the contact member through its range of motion in accordance with a pattern selected from the group consisting of:

 a sinusoidal fluctuation,
 a sawtooth fluctuation,
20 a series of narrow pulses,
 a square wave, and
 a modified sawtooth fluctuation.

25 22. (New) The machine of claim 18, wherein the mechanical connection comprises a cable, and the oscillator comprises a lead pulley.

 23. (New) The machine of claim 22, wherein the lead pulley has a rotational axis and a groove with a variable diameter in which the cable is supported.

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24. (New) The machine of claim 22, wherein the lead pulley has a rotational axis and a groove in which the cable is supported, wherein as the pulley rotates a cable guide portion of the groove oscillates laterally along the pulley axis of rotation so that the direction of the resistive force vector oscillates a plurality of times during movement of the contact member through its range of motion.

25. (New) A pulley-based exercise machine for exercising one or more muscles of the body, comprising:

a contact member movable in one direction through a distance defining a range of motion;

a cable attached to the contact member;

a lead pulley having a rotational axis and a groove in which the cable is supported;

a source of tensile force on the cable on the opposite side of the lead pulley from the contact member which operates to oppose movement of the contact member through its range of motion and manifests in a resistive force in the cable directed along a resistive force vector from the contact member to the lead pulley; and

wherein the lead pulley changes the direction of the resistive force vector a plurality of times during movement of the contact member through its range of motion such that the exerciser experiences an oscillating force vector.

26. (New) The machine of claim 25, further including means for changing the magnitude of the resistive force a plurality of times during movement of the contact member through its range of motion such that the exerciser also experiences an oscillating magnitude of the resistive force.

27. (New) The machine of claim 26, wherein the means for changing the magnitude of the resistive force is selected from the group consisting of:

a hydraulic pump,

a pneumatic pump, and

a programmable controller.

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28. (New) The machine of claim 26, wherein the means for changing the magnitude of the resistive force includes a programmable controller which randomly changes the magnitude of the resistive force.

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29. (New) The machine of claim 25, wherein the lead pulley groove has a variable diameter.

10 30. (New) The machine of claim 25, wherein as the lead pulley rotates a cable guide portion of the groove oscillates laterally along the pulley axis of rotation so that the direction of the resistive force vector oscillates a plurality of times during movement of the contact member through its range of motion.

31. (New) The machine of claim 30, wherein the lead pulley is tilted on its rotational axis.